

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claims 1-21 (Canceled)

22. (Currently Amended) The reactor according to Claim 24 40, wherein said second bundle ~~(52)~~ is formed by at least two segments of tubes ~~(521, 522)~~ wound along helical generatrices, nested and extending in parallel between said distributor ~~(53)~~ and said manifold ~~(54)~~.

23. (Currently Amended) The reactor according to Claim 20 39, wherein said ~~first~~ bundle ~~(51)~~ is formed by three segments of tube ~~(511, 512, 513)~~ wound along helical generatrices and nested.

24. (Currently Amended) The reactor according to Claim 20 39, wherein said segments ~~(511, 512, 513, 521, 522)~~ have substantially the same length and/or induce substantially the same pressure drop on the flow of said coolant fluid, between said distributor ~~(53)~~ and said manifold ~~(54)~~.

25. (Currently Amended) The reactor according to Claim 24 40, wherein the coil further comprises a tube ~~(56)~~ extending, in a direction substantially parallel to

said axis ~~(X₅)~~ between said first ~~(51)~~ and second ~~(52)~~ bundles, said tube being connected either to said distributor ~~(53)~~ or to said manifold ~~(54)~~.

26. (Currently Amended) The reactor according to Claim 25, wherein said distributor ~~(53)~~ and/or said manifold ~~(54)~~ are being in the form of a torus and ~~centred~~ centered on said axis ~~(X₅)~~.

27. (Canceled)

28. (Canceled)

29. (Canceled)

30. (Currently Amended) A reactor according to Claim ~~20~~ 39, further comprising an agitator ~~(4)~~ arranged around or inside said coil ~~(5)~~.

31. (Currently Amended) A reactor according to Claim 30, wherein said agitator is suspended from a ceiling of said reactor ~~(1)~~ and forms a cage surrounding said coil ~~(5)~~, the supply and evacuation ~~(56, 59, 61, 62)~~ of the coolant fluid towards or from said coil being effected through the bottom ~~(21)~~ of said reactor.

32. (Canceled)

33. (Currently Amended) A reactor according to Claim ~~30~~ 40, wherein the inner bundle ~~(52)~~ or the single bundle ~~(51)~~ of said coil forms a central well ~~(P)~~ of

~~radius (R_2) included~~ radius of said second bundle is less than that of said first bundle
and being between 20 and 70% of the radius (R) of said vessel (2) inner volume.

34. (Currently Amended) A reactor according to Claim ~~30~~ 33, wherein the
~~inner bundle (52) of said coil forms a central well (P) of radius (R_2) included~~ radius of
said second bundle is between 20 and 40% of said radius of said inner volume.

35. (Currently Amended) A process for the treatment of a viscous medium
 comprising the step of treading said liquid in a reactor (~~4~~) as defined in Claim ~~20~~ 39
 and of an inner volume (~~V~~) greater than about 8m^3 .

36. (Previously Presented) The process according to Claim 35, wherein said
 treatment is a reaction of polymerization.

37. (Previously Presented) The process according to Claim 36, wherein the
 reaction is a discontinuous reaction of polymerization.

38. (Currently Amended) The process according to Claim ~~38~~ 36 wherein the
 reaction is a continuous reaction of polymerization.

39. (New) A reactor for treating a viscous medium or for carrying out
 chemical reactions in viscous medium, said reactor comprising:

a vessel defining an inner volume; and

a coil in said inner volume for circulation of a coolant fluid, said coil comprising a first segment of tube wound along a helical generatrix, and a second segment of tube wound along a helical generatrix and extending in parallel to the first segment between a distributor and a manifold, said first and second segments being centered on the same geometrical axis with substantially the same bending radius and nested so that they together form a substantially cylindrical bundle; wherein the distributor is located within said inner volume and is curved with a radius substantially equal to the bending radius; the distributor arranged substantially coaxially with the bundle.

40. (New) The reactor according to Claim 39 wherein the bundle constitutes a first bundle; the coil further comprising a second bundle of cylindrical shape centered on said axis and curved with a radius different from said radius of said first bundle.

41. (New) A reactor for treating a viscous medium or for carrying out chemical reactions in viscous medium; said reactor comprising:

a vessel defining an inner volume; and

a coil in said inner volume for circulation of a coolant fluid, said coil comprising a first segment of tube wound along a helical generatrix, and a second segment of tube wound along a helical generatrix and extending in parallel to

the first segment between a distributor and a manifold, said first and second segments being centered on the same geometrical axis with substantially the same bending radius and nested so that they together form a substantially cylindrical bundle; wherein the manifold is located within said inner volume and is curved with a radius substantially equal to the bending radius; the manifold arranged substantially coaxially with the bundle.

42. (New) The reactor according to Claim 41 wherein the bundle constitutes a first bundle; the coil further comprising a second bundle of cylindrical shape centered on said axis and curved with a radius different from said radius of said first bundle.

43. (New) The reactor according to Claim 42, wherein said second bundle is formed by at least two segments of tubes wound along helical generatrices, nested and extending in parallel between said distributor and said manifold.

44. (New) The reactor according to Claim 41, wherein said bundle is formed by three segments of tube wound along helical generatrices and nested.

45. (New) The reactor according to Claim 41, wherein said segments have substantially the same length and/or induce substantially the same pressure drop on the flow of said coolant fluid, between said distributor and said manifold.

46. (New) The reactor according to Claim 42, wherein the coil further comprises a tube extending, in a direction substantially parallel to said axis between said first and second bundles, said tube being connected either to said distributor or to said manifold.

47. (New) The reactor according to Claim 46, wherein said distributor and/or said manifold being in the form of a torus and centered on said axis.

48. (New) A reactor according to Claim 41, further comprising an agitator arranged around or inside said coil.

49. (New) A reactor according to Claim 48, wherein said agitator is suspended from a ceiling of said reactor and forms a cage surrounding said coil, the supply and evacuation of the coolant fluid towards or from said coil being effected through the bottom of said reactor.

50. (New) A reactor according to Claim 42, wherein the radius of said second bundle is less than that of said first bundle and being between 20 and 70% of the radius of said inner volume

51. (New) A reactor according to Claim 50, wherein the radius of said second bundle is between 20 and 40% of said radius of said inner volume.

52. (New) A process for the treatment of a viscous medium comprising the step of treading said liquid in a reactor as defined in Claim 41 and of volume greater than about 8m³.

53. (New) The process according to Claim 52, wherein said treatment is a reaction of polymerization.

54. (New) The process according to Claim 53, wherein the reaction is a discontinuous reaction of polymerization.

55. (New) The process according to Claim 53 wherein the reaction is a continuous reaction of polymerization.

56. (New) A reactor for treating a viscous medium or for carrying out chemical reactions in viscous medium; said reactor comprising:

a vessel defining an inner volume, and

a coil in said inner volume for circulation of a coolant fluid, said coil comprising first and second substantially cylindrical bundles,

each of said first and second bundles comprising a first segment of tube wound along a helical generatrix, and a second segment of tube wound along a helical generatrix and extending in parallel to the first

segment between a distributor and a manifold, said first and second segments being nested together and centered on the same geometrical axis, with substantially the same bending radius;

wherein said first and second bundles are substantially coaxially arranged;

wherein said bending radius of said first bundle is different from said bending radius of said second bundle;

wherein said distributor is located in said inner volume, said distributor being curved with a radius substantially equal to the bending radius of one of said first and second bundles, said distributor arranged substantially coaxially with said first and second bundles; and

wherein said manifold is located in said inner volume, said manifold being curved with a radius substantially equal to the bending radius of one of said first and second bundles, said manifold arranged substantially coaxially with said first and second bundles.